

Appl. No. : 09/982,454
Filed : October 17, 2001

REMARKS

Claims 1 and 10 have been amended solely for clarification of the terms. Support can be found in Figures 2-4, for example. The amendments raise the issue of neither new matter nor new issue. Applicant respectfully requests entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejection Under 35 U.S.C. § 103(a)

Claims 1-5, 7, 9-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Aruga in view of McDiarmid.

The Examiner asserts that McDiarmid teaches a susceptor including a lip portion having a top surface and a slanted inner side surface. However, in McDiarmid, the lip portion is not slanted but exactly vertical, and a cavity 120 is extremely shallow (column 4, lines 19-20). In McDiarmid, the recess is shaped to be substantially the same as the wafer to prevent heat loss, which is a typical configuration for thermal CVD, not plasma CVD. The extremely shallow vertical cavity 120 will cause sparks if this susceptor is used in a plasma CVD apparatus.

Further, the Examiner asserts that Figures 4 and 5 displaying the concave portion having a slanting portion 221, 321. However, the above understanding is incorrect because the slanting portion 221, 321 is in contact with the edge of the wafer; that is, this portion is not a part of the lip portion, but simply a part of the wafer-supporting surface.

Furthermore, McDiarmid's apparatus is a thermal CVD apparatus as clearly shown in Figure 1. There is no suggestion in McDiarmid to apply this configuration to a plasma CVD apparatus. Further, McDiarmid's susceptor cannot be used for plasma CVD because of the extremely shallow vertical cavity which will cause sparks. In a plasma CVD apparatus, not only a heat transfer problem but also a plasma converging problem must be considered.

In conclusion, (I) neither Aruga nor McDiarmid teaches the lip portion having a slanted inner wall facing an end of the wafer to prevent a plasma converging problem. (II) Aruga clearly fails to teach or even suggest the susceptor having a concave surface. (III) McDiarmid teaches the susceptor having a concave surface without an outwardly slanted lip portion, but McDiarmid clearly fails to suggest applying the susceptor to plasma CVD (McDiarmid has no consideration of plasma converging problem). (IV) McDiarmid's susceptor cannot be used for plasma CVD because of the extremely shallow vertical cavity which will cause sparks.

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Thus, the susceptor recited in the present claims has structures and functions different from those taught or suggested by either Aruga or McDiarmid. Therefore, Claim 1 (a semiconductor substrate-supporting apparatus) and Claim 10 (a plasma CVD apparatus) could not be obvious over a combination of Aruga and McDiarmid. The remaining claims are dependent ultimately on either Claim 1 or 10, and at least for this reason, the remaining claims also could not be obvious over a combination of Aruga and McDiarmid.

CONCLUSION

In light of the Applicant's amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 12, 2003

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